

CLAIMS

Claim 1 (currently amended): A method for mitigating the deposition of wax on production tubing walls within a bore hole, the method comprising:

positioning at least one ultrasonic frequency generating device adjacent the production tubing walls;

positioning a variable frequency device outside the bore hole; and

producing at least one ultrasonic frequency thereby disintegrating the wax and inhibiting the wax from attaching to the production tubing walls.

Claim 2 (original): The method of claim 1 and further comprising:

producing three predetermined frequencies, the frequencies being a first frequency, a second frequency, and a third frequency.

Claim 3 (currently amended): The method of claim 2 wherein the three frequencies range between approximately ten (10) KHz and approximately two thousand (2000) KHz.

Claim 4 (original): The method of claim 2 and further comprising:

producing the first frequency;

vibrating the production tubing; and

inhibiting the wax from depositing on the production tubing walls.

Claim 5 (original): The method of claim 2 and further comprising:

producing the second frequency; and

breaking the bonds adhering the wax molecules together thereby disintegrating the wax into particles.

Claim 6 (original): The method of claim 2 and further comprising:

producing the third frequency;

reducing the long chained alkanes of the wax molecules thereby reducing the wax into smaller molecules.

Claim 7 (original): The method of claim 2 and further comprising:
generating all three predetermined frequencies simultaneously.

Claim 8 (currently amended): The method of claim 1 and further comprising:
determining the optimal frequencies with the a variable frequency device.

Claim 9 (currently amended): A system for mitigating the deposition of wax on production tubing walls with a bore hole, the system comprising:
at least one ultrasonic frequency generating device adjacent the production tubing walls;
a variable frequency device positioned outside the bore hole; and
at least one ultrasonic frequency generated by the generating device thereby disintegrating the wax and inhibiting the wax from attaching to the production tubing walls.

Claim 10 (original): The system of claim 9 wherein three predetermined frequencies are generated.

Claim 11 (currently amended): The system of claim 10 9 wherein the three frequencies range between approximately ten (10) KHz and approximately two thousand (2000) KHz.

Claim 12 (original): The system of claim 10 wherein the first frequency is approximately equal to the characteristic frequency of the production tubing thereby vibrating the production tubing and inhibiting the wax from depositing on the production tubing walls.

Claim 13 (original): The system of claim 10 wherein the second frequency has a frequency sufficient to disintegrate the wax into particles by breaking the bonds which cause the wax molecules to adhere together.

Claim 14 (original): The system of claim 10 wherein the third frequency has a frequency sufficient to break the bonds of the wax molecules so that the long chained alkanes are broken down into smaller molecules.

Claim 15 (original): The system of claim 10 and further comprising:
generating all three predetermined frequencies simultaneously.

Claim 16 (currently amended): The system of claim 9 and further comprising:
the a variable frequency device ~~for~~ determining the optimum frequencies.

Claim 17 (new): A method for mitigating the deposition of wax on production tubing walls, the method comprising:

positioning at least one ultrasonic frequency generating device adjacent the production tubing walls;
producing at least one ultrasonic frequency thereby disintegrating the wax and inhibiting the wax from attaching to the production tubing walls; and
determining the optimal frequencies with a variable frequency device.

Claim 18 (new): The method of claim 17 and further comprising:
producing three predetermined frequencies, the frequencies being a first frequency, a second frequency, and a third frequency.

Claim 19 (new): A system for mitigating the deposition of wax on production tubing walls, the system comprising:

at least one ultrasonic frequency generating device adjacent the production tubing walls;
at least one ultrasonic frequency generated by the generating device thereby disintegrating the wax and inhibiting the wax from attaching to the production tubing walls; and
a variable frequency device for determining the optimum frequencies.

Claim 20 (new): The system of claim 19 wherein three predetermined frequencies are generated.